

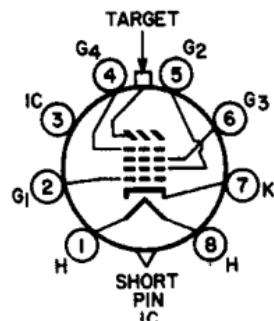
Vidicon

MAGNETIC FOCUS **1-1/2" Diameter** **MAGNETIC DEFLECTION**
For Black-and-White Pickup in Industrial
Closed-Circuit TV Systems Requiring Limit-
ing Resolutions of more than 1200 TV Lines

General:

Heater, for Unipotential Cathode:
 Voltage (AC or DC) 6.3 ± 10% volts
 Current at heater volts = 6.3 0.6 amp
 Direct Interelectrode Capacitance:^a
 Target to all other electrodes 8.0 pf
 Spectral Response See Accompanying Curve
 Photoconductive Layer:
 Maximum useful diagonal of rectangular
 image (4 x 3 aspect ratio)^b 1"
 Focusing Method Magnetic
 Deflection Method Magnetic
 Overall Length 7.75" ± 0.25"
 Greatest Diameter 1.59" ± 0.01"
 Bulb Diameter 1.50" ± 0.01"
 Operating Position Any
 Weight (Approx.) 5.25 oz
 Bulb T12
 Focusing-Alignment Assembly Cleveland Electronics^c
 Deflecting Yoke^d Cleveland Electronics^c
 No. 15-VY-258, or equivalent
 Socket Aldene^e No. 208-SBSDC, or equivalent
 Base Small-Button Super-Ditetra 8-Pin (JEDEC No.E8-78)
 Basing Designation for BOTTOM VIEW 8LB

- Pin 1 - Heater
- Pin 2 - Grid No.1
- Pin 3 - Do Not Use
- Pin 4 - Grid No.4
- Pin 5 - Grid No.2
- Pin 6 - Grid No.3
- Pin 7 - Cathode
- Pin 8 - Heater
- Flange - Target
- Short Index Pin - Do Not Use



DIRECTION OF LIGHT:
INTO FACE END OF TUBE

Maximum Ratings, Absolute-Maximum Values:

For scanned area of 0.6" x 0.8"

Grid-No.4 Voltage	1500 max. volts
Grid-No.3 Voltage	1500 max. volts
Grid-No.2 Voltage	550 max. volts



Grid-No.1 Voltage:			
Negative-bias value	300	max.	volts
Positive-bias value	0	max.	volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	125	max.	volts
Heater positive with respect to cathode	10	max.	volts
Target Voltage	100	max.	volts
Dark Current	0.25	max.	μ A
Peak Target Current ^f	0.60	max.	μ A
Faceplate:			
Illumination	1000	max.	fc
Temperature.	71	max.	$^{\circ}$ C

Typical Operation:

*For scanned area of 0.6" x 0.8" and
faceplate temperature of 28 $^{\circ}$ to 34 $^{\circ}$ C*

Grid-No.4 (Decelerator) Voltage ^g	1400	volts
Grid-No.3 (Beam-Focus Electrode ^h)	800 to 1000	volts
Grid-No.2 (Accelerator) Voltage.	300	volts
Grid-No.1 Voltage for picture cutoff ^j	-45 to -100	volts

Average "Gamma" of Transfer Characteristic
for signal-output current between

0.02 μ A and 0.6 μ A 0.65

Minimum Peak-to-Peak Blanking Voltage:

When applied to grid No.1.	75	volts
When applied to cathode.	20	volts

Lag—Per Cent of Initial Value of Signal-

Output Current 1/20 Second after

Illumination is Removed:^k

Maximum value.	45	%
Typical value.	30	%

Limiting Resolution:

At center of picture—

Typical value.	1500	TV lines
Minimum value.	1200	TV lines

At corners of picture—

Typical value.	900	TV lines
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Amplitude Response to a 400 TV

Line Square-Wave Test Pattern
at Center of Picture:

Minimum value.	60	%
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Field Strength at Center of

Focusing Coil (Approx.).	46	gauss
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Field Strength of Adjustable

Alignment Coil ^m	0 to 4	gauss
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Peak Deflecting-Coil Current for

Specified Deflecting Yoke:

Horizontal	240	ma
Vertical	50	ma

*Maximum-Sensitivity Operation—
0.1 Footcandle on Faceplate*

Faceplate Illumination

(Highlight).	0.1	tc
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Target Voltage ⁿ , P	30 to 60	volts
Dark Current ^q	0.1	μ A
Signal-Output Current: ^r		
Typical.	0.2	μ A

*Average-Sensitivity Operation—
1.0 Footcandle on Faceplate*

Faceplate Illumination

(Highlight).	1.0	fc
Target Voltage ⁿ , P	17 to 35	volts
Dark Current ^q	0.02	μ A
Signal-Output Current: ^r		
Typical.	0.20	μ A
Minimum.	0.15	μ A

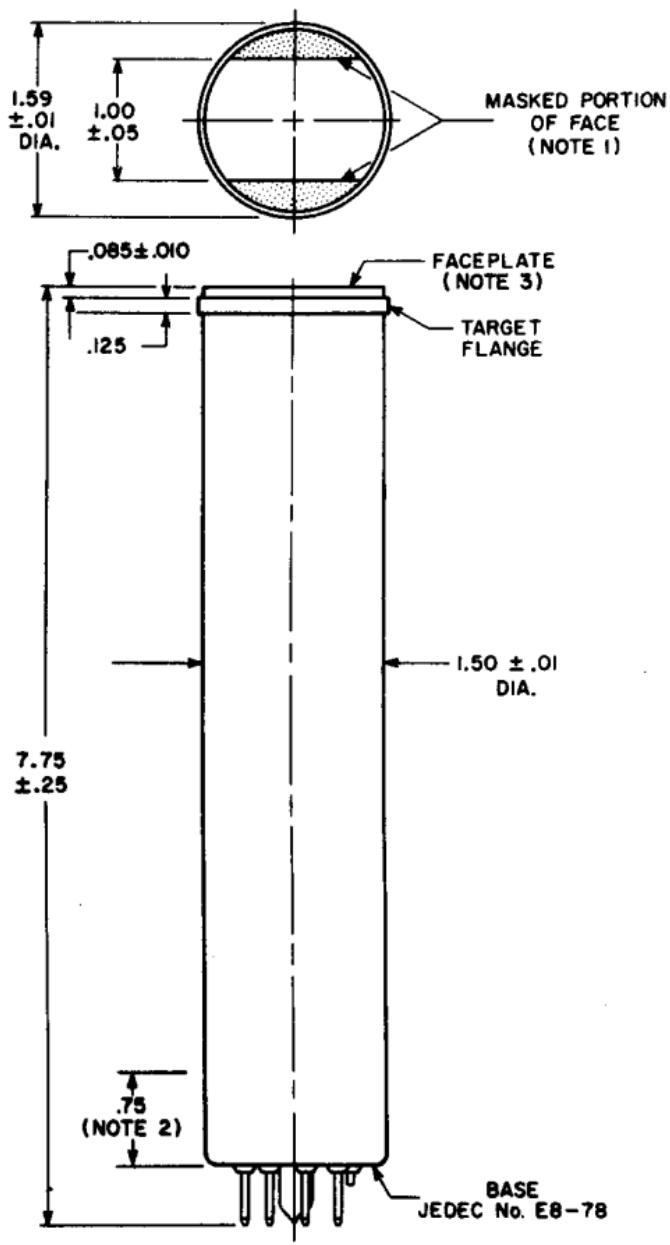
*High-Light Level Operation—
10 Footcandles on Faceplate*

Faceplate Illumination

(Highlight).	10	fc
Target Voltage ⁿ , P	10 to 20	volts
Dark Current ^q	0.005	μ A
Signal-Output Current: ^r		
Typical.	0.3	μ A

- ^a This capacitance, which effectively is the output impedance of the 8521, is increased when the tube is mounted in the deflecting-yoke and focusing-alignment assembly. The resistive component of the output impedance is in the order of 100 megohms.
- ^b Proper orientation of quality rectangle is obtained when the horizontal scan is essentially parallel to the plane passing through the axis and short index pin. The masking is for orientation only and does not define the proper scanned area of photoconductive layer. Final orientation should be such that the image also fits inside of any internal mask of the mesh assembly.
- ^c Cleveland Electronics Inc., 1974 East 61st St., Cleveland, Ohio.
- ^d For minimum geometric distortion, the deflecting yoke should be located in its proper axial position 3/4-inch from the face of the tube.
- ^e Alden Products Co., 9140 North Main Street, Brockton 64, Mass.
- ^f Video amplifiers must be designed properly to handle target currents of this magnitude to avoid amplifier overload or picture distortion.
- ^g Grid-No.4 voltage must always be greater than grid-No.3 voltage. For minimum "porthole" effect, grid-No.4 voltage should be adjusted to approximately 1.6 times the grid-No.3 voltage value, and the focusing-alignment assembly and deflecting yoke positioned as shown in accompanying diagram.
- ^h Beam focus is obtained by the combined effect of grid-No.3 voltage, which should be adjustable over indicated range, and a focusing coil having an average field strength of 46 gauss.
- ^j With no blanking voltage on grid No.1.
- ^k For initial signal-output current of 0.2 μ A and a dark current of 0.02 μ A.
- ^m The alignment coil should be located on the tube so that its center is at a distance of 6 inches from the face of the tube, and be positioned so that its axis is coincident with the axis of the tube, the deflecting yoke, and the focusing coil.
- ⁿ Indicated range for each type of service serves only to illustrate the operating target-voltage range normally encountered.
- ^p The target voltage for each 8521 must be adjusted to that value which gives the desired operating dark current.
- ^q The deflecting circuits must provide extremely linear scanning for good black-level reproduction. Dark-current signal is proportional to the scanning velocity. Any change in scanning velocity produces a black-level error in direct proportion to the change in scanning velocity.
- ^r Defined as the component of the highlight target current after the dark-current component has been subtracted.





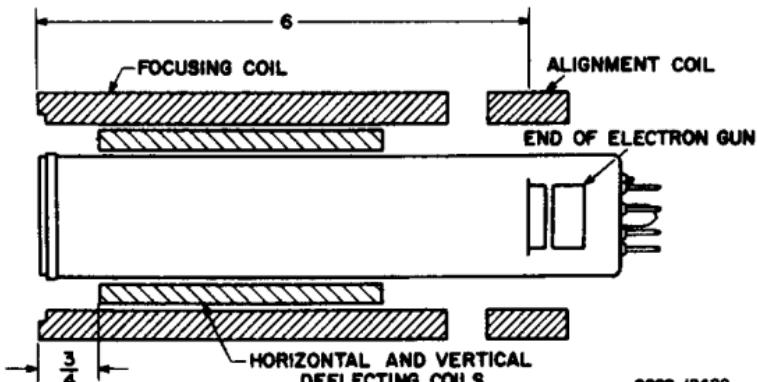
DIMENSIONS IN INCHES

Note 1: Straight sides of masked portions are parallel to the plane passing through tube axis and short index pin.

Note 2: Within this area the minimum bulb diameter dimension does not apply.

Note 3: Faceplate thickness is $0.135" \pm 0.005"$.

COMPONENT LOCATIONS

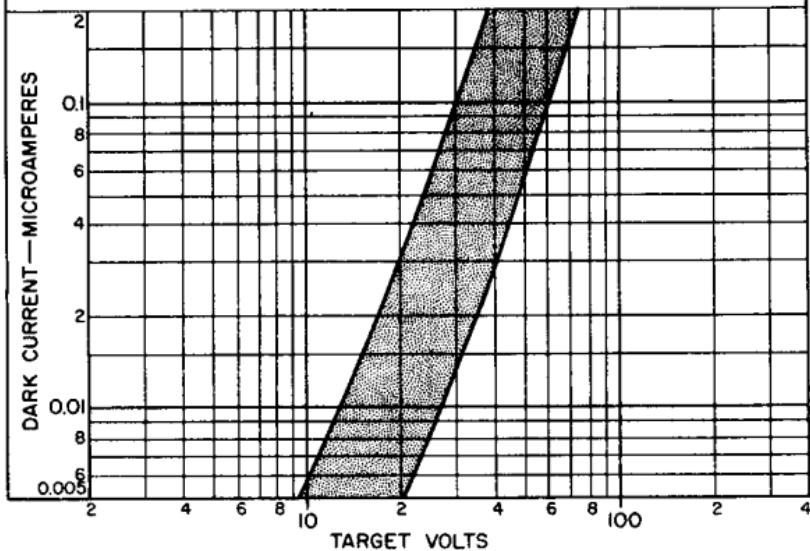


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DIMENSIONS IN INCHES

RANGE OF DARK CURRENT

SCANNED AREA OF PHOTOCONDUCTIVE LAYER=0.6" X 0.8"
FACEPLATE TEMPERATURE=30° C APPROX.



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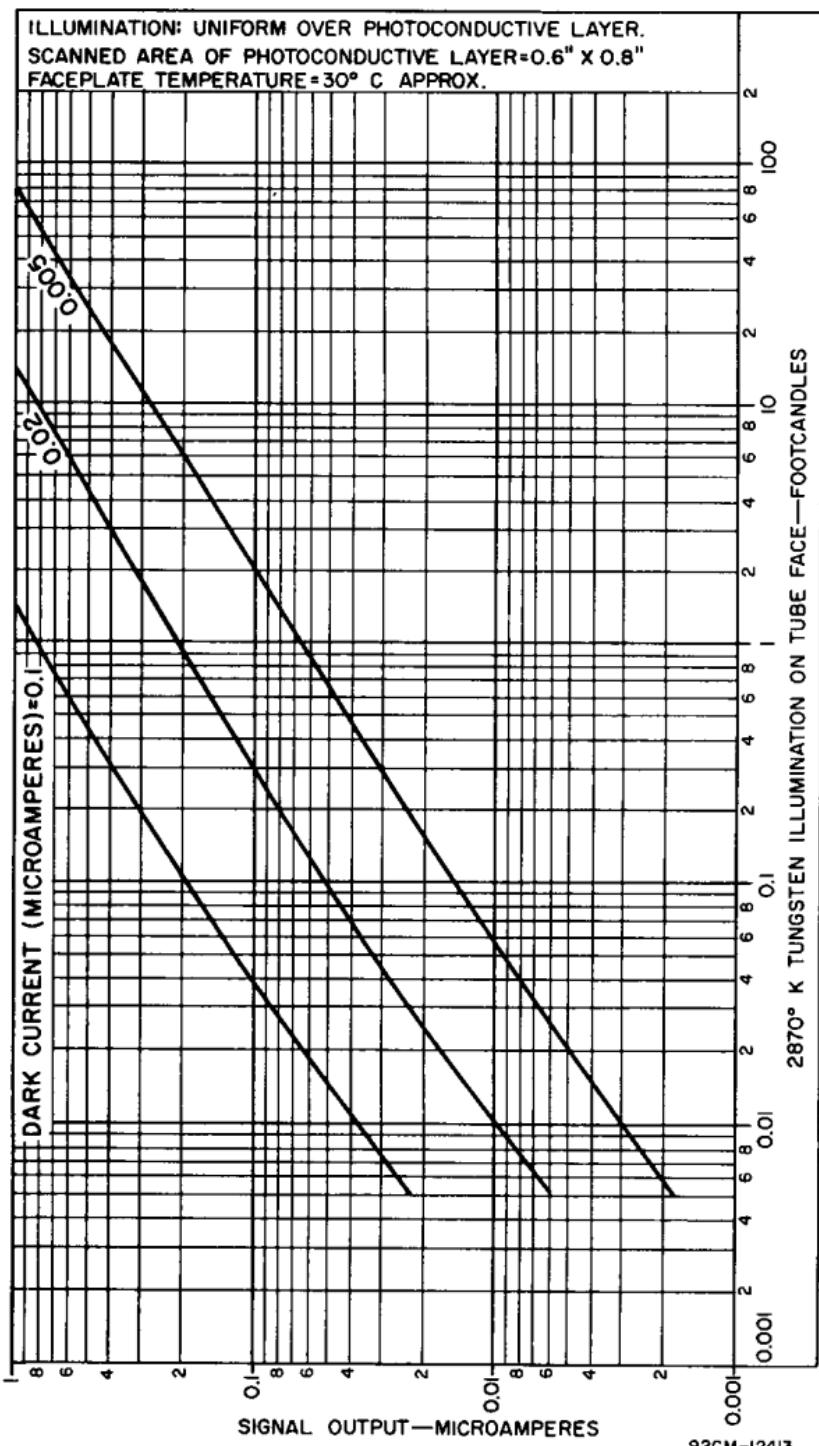
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LIGHT TRANSFER CHARACTERISTICS

ILLUMINATION: UNIFORM OVER PHOTOCONDUCTIVE LAYER.
 SCANNED AREA OF PHOTOCONDUCTIVE LAYER = 0.6" X 0.8"
 FACEPLATE TEMPERATURE = 30° C APPROX.

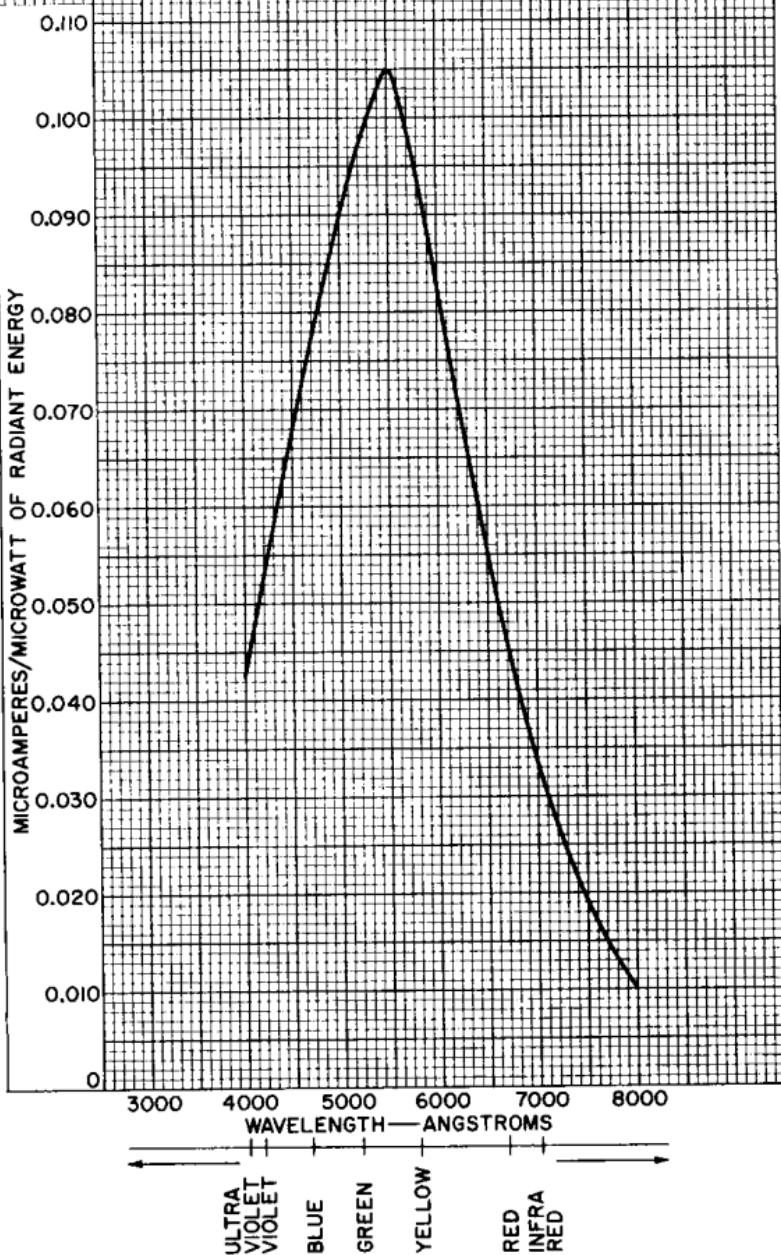


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TYPICAL SPECTRAL SENSITIVITY CHARACTERISTIC

FOR EQUAL VALUES OF SIGNAL-OUTPUT
CURRENT AT ALL WAVELENGTHS.
SIGNAL-OUTPUT MICROAMPERES FROM
SCANNED AREA OF $1/2'' \times 3/8'' = 0.02$
DARK CURRENT (MICROAMPERES)=0.02



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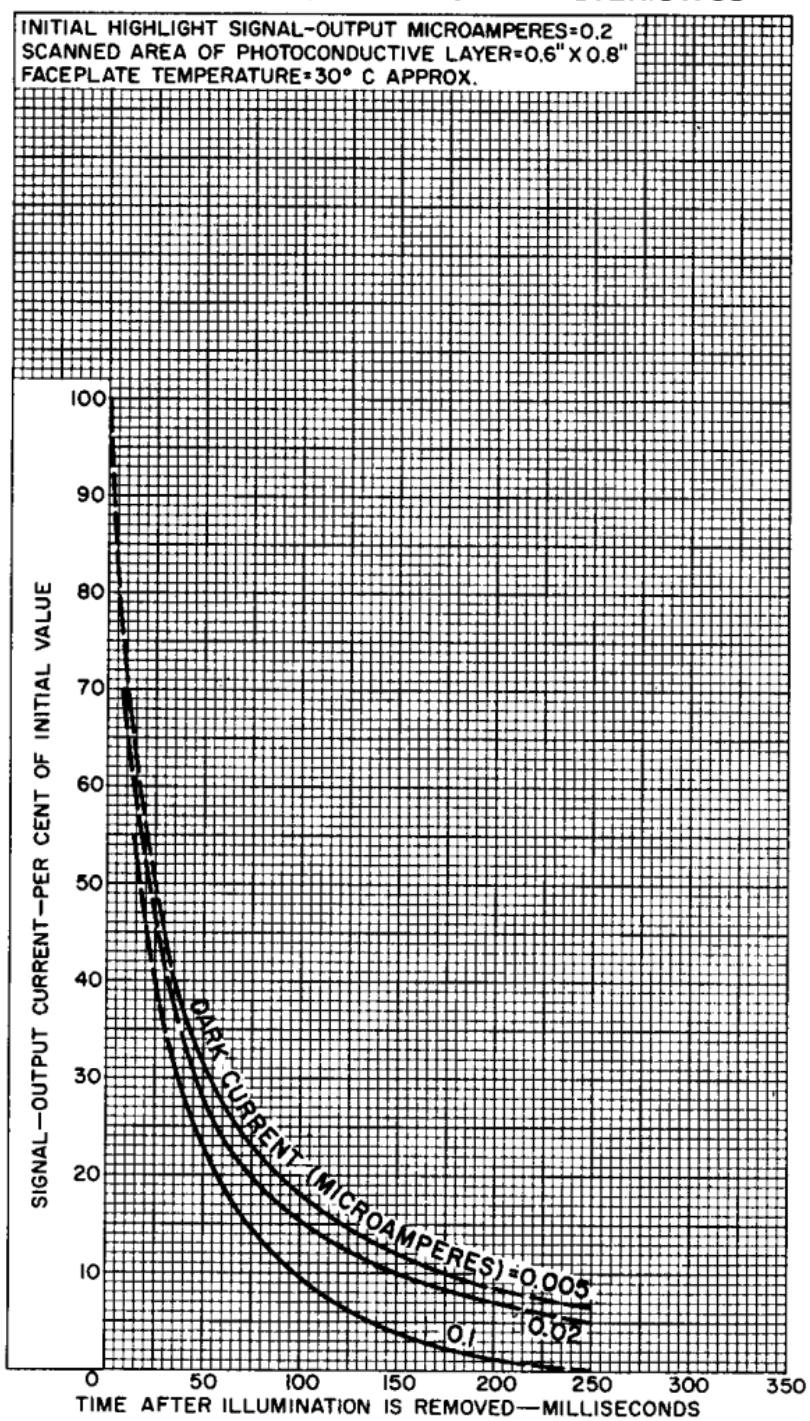
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TYPICAL PERSISTENCE CHARACTERISTICS

INITIAL HIGHLIGHT SIGNAL-OUTPUT MICROAMPERES=0.2
SCANNED AREA OF PHOTOCONDUCTIVE LAYER=0.6" X 0.8"
FACEPLATE TEMPERATURE=30° C APPROX.

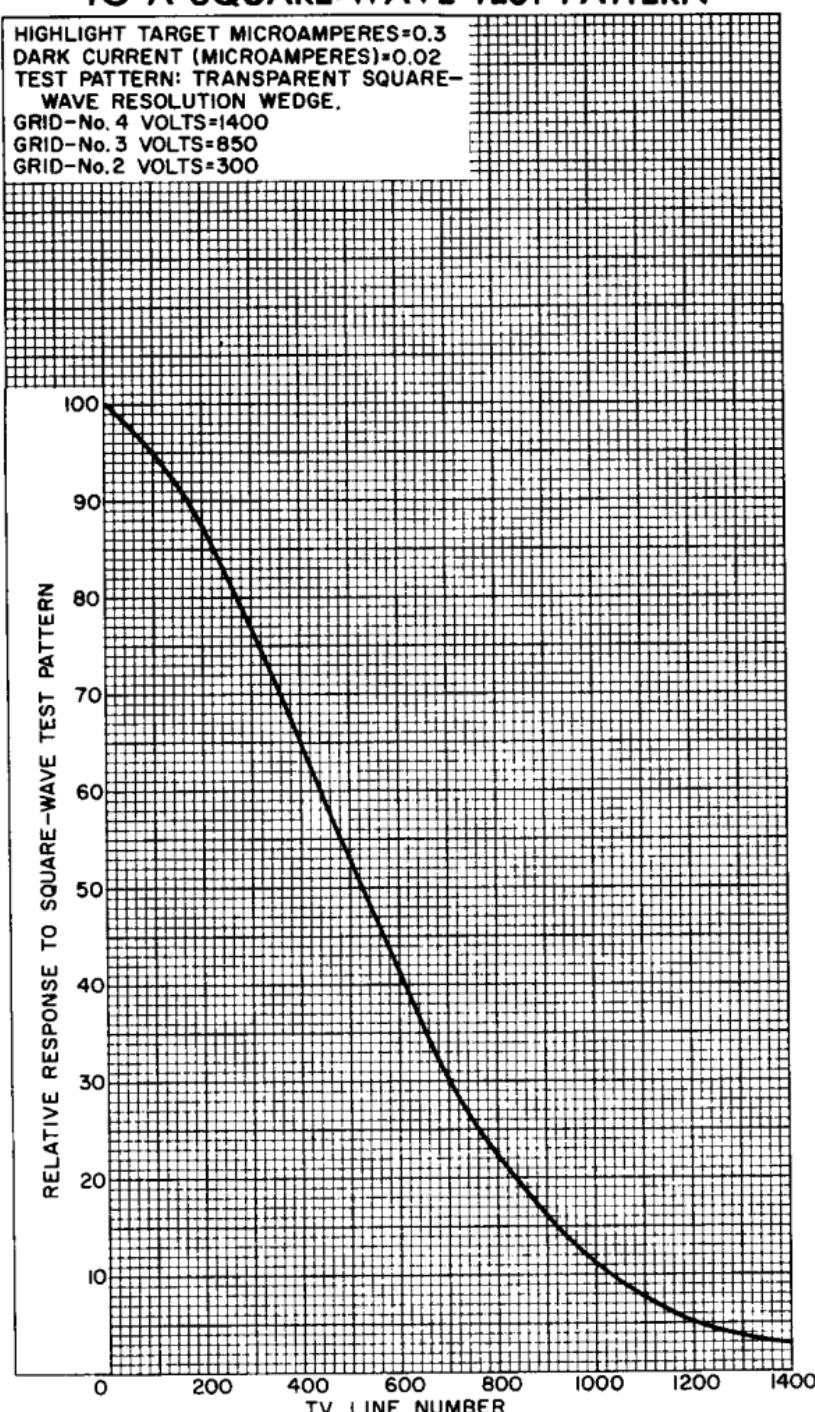


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UNCOMPENSATED HORIZONTAL RESPONSE TO A SQUARE-WAVE TEST PATTERN

HIGHLIGHT TARGET MICROAMPERES=0.3
 DARK CURRENT (MICROAMPERES)=0.02
 TEST PATTERN: TRANSPARENT SQUARE-
 WAVE RESOLUTION WEDGE.
 GRID-No. 4 VOLTS=1400
 GRID-No. 3 VOLTS=850
 GRID-No. 2 VOLTS=300



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